~~sulfide (H2S) to methane of~~ at least 0.1 moles of hydrogen sulfide per mole of methane, said method comprising the steps of:

reforming a feed stream containing said sour natural gas and steam~~,~~ by passing said feed stream over a metal-based catalyst ~~chosen~~ to capture sulfur and form ~~from the group of nickel-based reforming catalysts and noble metal based reforming catalysts and a metal-based catalyst to capture the sulfur by forming~~ a metal sulfide, said metal-based catalyst ~~chosen~~ selected from the group consisting essentially of NiO, Fe_2O_3, MnO, CuO, CoO, CdO and ZnO and mixtures thereof~~, and Fe_2O_3, MnO, CuO, CoO, CdO and ZnO and mixtures thereof supported on an inert carrier catalyst~~;

regenerating said metal-based catalyst by contacting said metal sulfide formed during ~~the~~ said reforming step with air, ~~the switching between the reforming and the regenerating modes being adjusted so that the heat consumed in the reforming step is balanced by heat liberated in the regeneration step.~~ wherein the amount of heat consumed in said reforming step is balanced by the heat liberated in said regenerating step.

2. (Cancelled).

3. (Currently amended) A method according to claim 1, ~~wherein said reforming catalyst is noble metal based, the sulfur capture catalyst is chosen from the group, NiO MnO, CuO, CoO, CdO and ZnO, and~~ wherein said~~the~~ sour natural gas has a ratio at least 0.3 moles of hydrogen sulfide per mole of methane.

4. (Currently amended) A method according to claim 1, wherein a continuous stream of syngas is produced by repeatedly cycling multiple reactors between said reforming~~,~~ and regenerating steps.

5. (Currently amended) A method according to claim ~~4,~~1, wherein said reforming ~~catalyst~~ and regenerating steps use a nickel-based catalyst and~~and sulfur capture catalyst are the same nickel-based material, wherein the reforming and regenerations step~~ are carried out at a temperature of at least ~~7~~500°C~~, wherein the pressure during the reforming step is at least 100 atmospheres, and wherein SO_2 is removed from the vitiated air produced in the regeneration step by passing said vitiated air through a bed of $CaCO_3$~~. .

6. (Currently amended) A method according to claim ~~5~~1, wherein said regenerating step produces vitiated air containing SO_2, said SO_2 being removed in a further step of passing said vitiated air over a fluidized ~~said~~ bed of $CaCO_3$ ~~is fluidized, operated~~ at a pressure of between 3 and 10 atmospheres.~~ at a pressure in the range of 3 to 10 atmospheres and used to generate power via a gas turbine.~~

7. (New) A method according to claim 1, wherein the pressure during said reforming step is at least 100 atmospheres~~ and wherein SO_2 is removed during said regeneration step by passing SO_2 through a bed of $CaCO_2$~~.

8. (New) A method according to claim 1, wherein said metal-based catalyst is supported on an inert carrier catalyst.

9. (New). A method according to claim 1, wherein said metal-based catalyst is NiO and said reforming step includes a first phase wherein said NiO is reduced to Ni,

said CH_4 is reformed to produce hydrogen and CO, and said H_2S reacts with NiO to produce NiS and ~~hydrogen~~H_2O.

10. (New). A method according to claim 1, wherein said metal-based catalyst is NiO and said reforming step includes a second phase wherein substantially all of the NiO is reduced to Ni and the composition of the output gas from said reforming step changes from CO_2 and H_2O to an equilibrium mixture of hydrogen, H_2O, CO, CO_2 and CH_4.

11. (New). A method according to claim 1, wherein said metal-based catalyst is NiO and said regenerating step includes a first phase wherein said air reacts with the Ni formed during said reforming step to form NiO.

12. (New). A method according to claim 1, wherein said metal-based catalyst is NiO and said regenerating step includes a second phase wherein said air reacts with NiS to form SO_2 and NiO.